

## ABSTRACT OF THE DISCLOSURE

An antenna system for receiving electromagnetic waves of predetermined frequency range is disclosed comprising an antenna configured for receiving electromagnetic waves; and a plasma filter configured for reflecting a first electromagnetic frequency emitted from a remote source, while at the same time passing a second electromagnetic frequency, such that one of the first electromagnetic frequency and the second electromagnetic frequency is received by the antenna. The electromagnetic wave filter can comprise a power medium positioned with respect to a region of space; a composition disposed within the region of space for forming a plasma; an energy source electromagnetically coupled to the power medium such that a plasma may be formed in the region of space; and a control mechanism for varying plasma density within the region of space, wherein the plasma density will reflect a first electromagnetic frequency emitted from a remote source, while at the same time passing a second electromagnetic frequency.